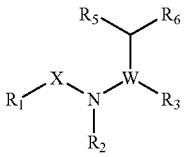
[1191] Other chemical entities of this class were found to inhibit cell proliferation, although GI_{50} values varied. GI_{50} values for the chemical entities tested ranged from 200 nM to greater than the highest concentration tested. By this we mean that although most of the chemical entities that inhibited mitotic kinesin activity biochemically did inhibit cell proliferation, for some, at the highest concentration tested (generally about 20 μM), cell growth was inhibited less than 50% . Many of the chemical entities have GI_{50} values less than 10 μM, and several have GI_{50} values less than 1 μM. Anti-proliferative compounds that have been successfully applied in the clinic to treatment of cancer (cancer chemotherapeutics) have GI_{50}'s that vary greatly. For example, in A549 cells, paclitaxel GI_{50} is 4 nM, doxorubicin is 63 nM, 5-fluorouracil is 1 μM, and hydroxyurea is 500 μM (data provided by National Cancer Institute, Developmental Therapeutic Program, http://dtp.nci.nih.gov/). Therefore, compounds that inhibit cellular proliferation at virtually any concentration may be useful.

What is claimed is:

1. At least one chemical entity chosen from compounds of Formula I

Formula I



and pharmaceutically acceptable salts, solvates, chelates, non-covalent complexes, prodrugs, and mixtures thereof, wherein

R_1 is chosen from optionally substituted aryl, optionally substituted heterocycloalkyl, and optionally substituted heteroaryl;

X is chosen from —CO and —SO_2—;

R_2 is chosen from hydrogen and optionally substituted lower alkyl;

W is chosen from —CR_4—, —CH_2CR_4—, and N;

R_3 is chosen from —CO—R_7, hydrogen, optionally substituted alkyl, optionally substituted heterocycloalkyl, optionally substituted heteroaryl, cyano, sulfonyl, and optionally substituted aryl;

R_4 is chosen from hydrogen and optionally substituted alkyl;

R_5 is chosen from hydrogen, hydroxy, optionally substituted amino, optionally substituted cycloalkyl, optionally substituted heterocycloalkyl;optionally substituted heteroaryl, and optionally substituted lower alkyl;

R_6 is chosen from hydrogen, optionally substituted alkyl, optionally substituted alkoxy, optionally substituted aryloxy, optionally substituted heteraryloxy, optionally substituted alkoxycarbonyl-, aminocarbonyl-, optionally substituted aryl, optionally substituted heteroaryl, optionally substituted cycloalkyl, and optionally substituted heterocycloalkyl; and

R_7 is chosen from optionally substituted lower alkyl, optionally substituted aryl, hydroxy, optionally substituted amino, optionally substituted aralkoxy, and optionally substituted alkoxy;

provided that if W is N, then R_5 is not hydroxy or optionally substituted amino, and R_6 is not optionally substituted alkoxy, optionally substituted aralkoxy, optionally substituted heteroaralkoxy, or optionally substituted amino.

2. At least one chemical entity of claim 1 wherein R_1 is optionally substituted aryl.

3. At least one chemical entity of claim 2, wherein R_1 is optionally substituted phenyl.

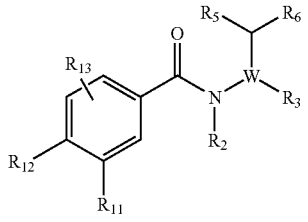
4. At least one chemical entity of claim 3, wherein R_1 is phenyl substituted with one, two or three groups independently selected from optionally substituted heterocycloalkyl, optionally substituted alkyl, sulfonyl, halo, optionally substituted amino, sulfanyl, optionally substituted alkoxy, optionally substituted aryloxy, optionally substituted heteroaryloxy; acyl, hydroxy, nitro, cyano, optionally substituted aryl, and optionally substituted heteroaryl-.

5. At least one chemical entity of claim 4, wherein R_1 is chosen from 3-halo-4-isopropoxy-phenyl, 3-cyano-4-isopropoxy-phenyl, 3-halo-4-((R)-1,1,1-trifluoropropan-2-yloxy)phenyl, 3-cyano-4-((R)-1,1,1-trifluoropropan-2-yloxy)phenyl, 3-halo-4-isopropylamino-phenyl, 3-cyano-4-isopropylamino-phenyl, 3-halo-4-((R)-1,1,1-trifluoropropan-2-ylamino)phenyl, and 3-cyano-4-((R)-1,1,1-trifluoropropan-2-ylamino)phenyl.

6. At least one chemical entity of claim 1 wherein X is —CO—.

7. At least one chemical entity of claim 1 wherein the compound of Formula I is chosen from compounds of Formula II

(Formula II)



wherein

R_{11} is chosen from optionally substituted heterocycloalkyl, optionally substituted heteroaryl, optionally substituted lower alkyl, nitro, cyano, hydrogen, sulfonyl, and halo;

R_{12} is chosen from hydrogen, halo, optionally substituted alkyl, optionally substituted amino, sulfanyl, optionally substituted alkoxy, optionally substituted aryloxy, optionally substituted heteroaryl, optionally substituted heterocycloalkyl, and optionally substituted heteroaryloxy; and

R_{13} is chosen from hydrogen, acyl, optionally substituted alkyl-, optionally substituted alkoxy, halo, hydroxy, nitro, cyano, optionally substituted amino, alkylsulfonyl-, alkylsulfonamido-, carboxyalkyl-, aminocarbonyl-, optionally substituted aryl and optionally substituted heteroaryl-.